



AN ISO 9001 : 2008 COMPANY & ACCREDITED LABORATORY AS PER ISO/IEC 17025:2017  
# 4, 7TH MAIN MALLESWARAM, BANGALORE -3

Certificate No.: TC-5548

To,

Date: 29-06-2022

ASSISTANT EXECUTIVE ENGINEER  
PROJECT SUB DIVISION  
BBMP  
BANGALORE

Dear Sir,

Sub: M/s. Civil Pro Services for the work of "PROVIDING RO PLANT IN  
BYATARAYANAPURA IN WARD NO.07."

Ref: 1. Work Order No: EE(Project)/YnkZone/WO/135/2020-21

2. Job code: 007-21-000002

We are herewith forwarding to Sri.M C Adarsh, #2/427, 8th Main, 17th Cross, Agrahara  
Dasarahalli, Basaveshwaranagara, Bangalore-79. First and Final bill duly verified and certified  
that the Work is satisfactory and for a Gross Value of Rs.15,45,279.47/- (Rs. Fifteen Lakhs Forty  
Five Thousand Two Hundred Seventy Nine and Forty Seven Paisa Only).

Thanking you,

S. Aggarwal AE  
For NMA

Asst. Executive Engineer  
Project Division  
Yelahanka Zone  
BBMP, Bangalore - 92



Yours faithfully,

For Civil Pro

**R KARTHIK RECHAN**  
AUTHORIZED SIGNATORY  
CIVIL PRO

M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

HIGHWAY & BUILDING MATERIALS TESTING LABORATORY | STRUCTURAL | ENVIRONMENTAL  
WATER TESTING | GEO TECHNICAL | PROJECT MANAGEMENT | SURVEYING SERVICES



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# 4, 7TH MAIN MALLESWARAM, BANGALORE -3

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NAME OF WORK: Providing RO Plant in Byatarayanapura in Ward No.07

### QC ABSTRACT

| SL NO | Item Of Work                      | Name of Test                           | Frequency of Test/Quantity | Executed Quantity | Number of Tests Required | Number of Tests Conducted |
|-------|-----------------------------------|----------------------------------------|----------------------------|-------------------|--------------------------|---------------------------|
| 1     | Cement                            | <b>Materials</b>                       |                            |                   |                          |                           |
|       |                                   | Fineness by dry sieving                | One Test                   |                   | 1                        | 1                         |
|       |                                   | Fineness by Air permeability method    | One Test                   |                   | 1                        | 1                         |
|       |                                   | Density                                | One Test                   |                   | 1                        | 1                         |
|       |                                   | Standard Consistency                   | One Test                   |                   | 1                        | 1                         |
|       |                                   | Initial Setting time                   | One Test                   |                   | 1                        | 1                         |
|       |                                   | Final Setting time                     | One Test                   |                   | 1                        | 1                         |
|       |                                   | Soundness (Le Chatelier's Method)      | One Test                   |                   | 1                        | 1                         |
| 2     | Coarse aggregate(40 mm down size) | Compressive Strength                   | One Test                   |                   | 1                        | 1                         |
|       |                                   | SIEVE ANALYSIS                         | One Test                   |                   | 1                        | 1                         |
|       |                                   | Flakiness Index                        | One Test                   |                   | 1                        | 1                         |
|       |                                   | Elongation Index                       | One Test                   |                   | 1                        | 1                         |
|       |                                   | Specific Gravity                       | One Test                   |                   | 1                        | 1                         |
|       |                                   | Bulk Density(Loose)                    | One Test                   |                   | 1                        | 1                         |
|       |                                   | Bulk Density(Compacted)                | One Test                   |                   | 1                        | 1                         |
|       |                                   | Water Absorption                       | One Test                   |                   | 1                        | 1                         |
| 3     | Coarse aggregate(20 mm down size) | SIEVE ANALYSIS                         | One Test                   |                   | 1                        | 1                         |
|       |                                   | Flakiness Index                        | One Test                   |                   | 1                        | 1                         |
|       |                                   | Elongation Index                       | One Test                   |                   | 1                        | 1                         |
|       |                                   | Specific Gravity                       | One Test                   |                   | 1                        | 1                         |
|       |                                   | Bulk Density(Loose)                    | One Test                   |                   | 1                        | 1                         |
|       |                                   | Bulk Density(Compacted)                | One Test                   |                   | 1                        | 1                         |
|       |                                   | Water Absorption                       | One Test                   |                   | 1                        | 1                         |
|       |                                   | Aggregate crushing Value               | One Test                   |                   | 1                        | 1                         |
| 4     | Fine aggregate                    | Aggregate Impact Value                 | One Test                   |                   | 1                        | 1                         |
|       |                                   | SIEVE ANALYSIS                         | One Test                   |                   | 1                        | 1                         |
|       |                                   | Water Absorption                       | One Test                   |                   | 1                        | 1                         |
|       |                                   | Specific Gravity                       | One Test                   |                   | 1                        | 1                         |
| 5     | Steel                             | Material finer than 75 micron          | One Test                   |                   | 1                        | 1                         |
|       |                                   | Bend test                              | One Test                   |                   | 1                        | 1                         |
|       |                                   | Tensile Test                           | One Test                   |                   | 1                        | 1                         |
|       |                                   | Yield Test                             | One Test                   |                   | 1                        | 1                         |
| 6     | Block(400*200*200)                | ReBend test                            | One Test                   |                   | 1                        | 1                         |
|       |                                   | BLOCK DENSITY                          | One Test                   |                   | 1                        | 1                         |
|       |                                   | WATER ABSORPTION                       | One Test                   |                   | 1                        | 1                         |
|       |                                   | DIMENSION ANALYSIS                     | One Test                   |                   | 1                        | 1                         |
| 7     | RCC(M25)                          | COMPRESSIVE STRENGTH                   | One Test                   |                   | 1                        | 1                         |
| 8     | Mortar Sand                       | Compressive Strength(7days and 28days) | 4 set /5-50 cum            | 8.06              | 8                        | 8                         |
|       |                                   | Water Absorption                       | One Test                   |                   | 1                        | 1                         |
|       |                                   | Specific Gravity                       | One Test                   |                   | 1                        | 1                         |
|       |                                   | Material finer than 75 micron          | One Test                   |                   | 1                        | 1                         |
|       |                                   | Compacted Bulk Density                 | One Test                   |                   | 1                        | 1                         |
|       |                                   | Loose Bulk Density                     | One Test                   |                   | 1                        | 1                         |
|       |                                   | SIEVE ANALYSIS                         | One Test                   |                   | 1                        | 1                         |
| 9     | Plaster Sand                      | Water Absorption                       | One Test                   |                   | 1                        | 1                         |
|       |                                   | Specific Gravity                       | One Test                   |                   | 1                        | 1                         |
|       |                                   | Material finer than 75 micron          | One Test                   |                   | 1                        | 1                         |
|       |                                   | SIEVE ANALYSIS                         | One Test                   |                   | 1                        | 1                         |

Asst. Executive Engineer

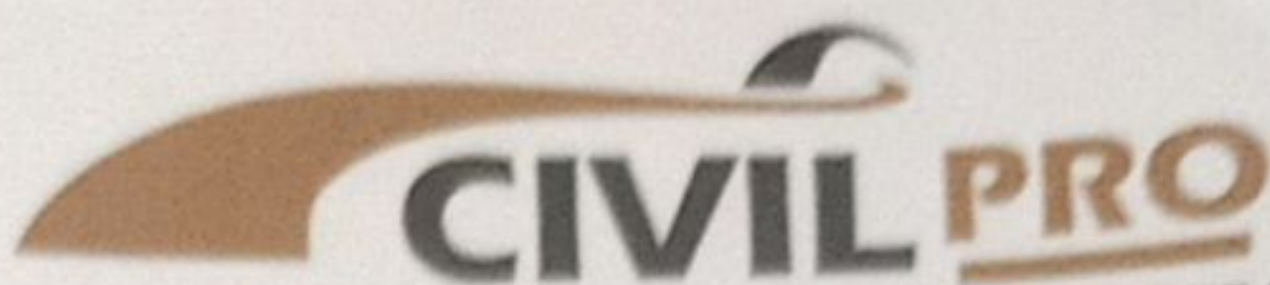
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Yelahanka Zone

HIGHWAY & BUILDING MATERIALS TESTING LABORATORY, BANGALORE - 92

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# 4, 7TH MAIN MALLESWARAM, BANGALORE -3

Certificate No.: TC-1548

Format No. CP/TF/01

TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Date: 25-04-22

Lab ID : CP-2022-10-13-06  
Customer : Assistant Executive Engineer, Project Sub Division, BBMP, Bangalore.  
Address : Project Sub Division, BBMP, Bangalore.  
Project Name : Providing RO Plant in Byatarayanapura in Ward No.07  
Agency : Sri.M C Adarsh, #2/427, 8th Main, 17th Cross, Agrahara Dacarahalli,  
Basaveshwaranagara, Bangalore-79  
Customer's Reference : EE(Project)/YnkZone/WO/135/2020-21  
Source of Sample : Sample supplied by Agency  
Sample Condition : Satisfactory  
Date of Receipt : 22-04-22  
Sample Type : Birla Super 53grade  
Reference to BIS codes : IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification .  
IS 4031 (Part 1,2,3,4,5, 6,11):1988  
IS 4031 Part 1 (RA 2021) DETERMINATION OF FINENESS BY DRY SIEVING,  
Clause 4.4  
IS 4031 Part 2, (RA 2018) Determination of Fineness by Blaine Air Permeability  
Method, Clause 5  
IS 4031 Part 3, (RA 2019) Determination of Soundness, Clause 5, Clause 6  
IS 4031 Part 4, (RA 2019) Determination of Consistency of Standard Cement Paste,  
Clause 5  
IS 4031 Part 5, (RA 2019) Determination of Initial & Final Setting Time, Clause 5  
IS 4031 Part 11, (RA 2019) DETERMINATION OF DENSITY . Clause 6

Date of test : 23-04-22

Environmental Conditions during test :

Temperature:  
Humidity:

26°C  
72%

| Sl.No. | Physical properties                                       | Results     | Requirement as per IS 12269: 2013 |
|--------|-----------------------------------------------------------|-------------|-----------------------------------|
| 1      | Fineness by dry sieving (%)                               | 2.1         | -                                 |
| 2      | Finess by Air permeablity method (m <sup>2</sup> /kg.Min) | 284.5       | 225m <sup>2</sup> /kg. Min        |
| 3      | Density (gm/cc)                                           | 3.13        | -                                 |
| 4      | Standard Consistency (%)                                  | 28%         | Not specified                     |
| 5      | Initial Setting time                                      | 155 minutes | Not less than 30 minutes          |
| 6      | Final Setting time                                        | 260 minutes | Not more than 600 minutes         |
| 7      | Soundness (Le Chatelier's Method)                         | 2mm         | Not more than 10 mm               |

\* The results obtained are satisfactory as per standard requirements.

Note:

The results pertain to the samples received and tested.

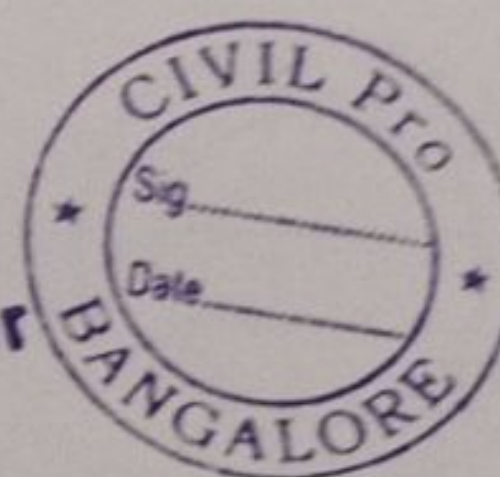
All information furnished by Customer/Representative

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Samples will be disposed after 30 days from the date of issue of test certificate

Asst. Executive Engineer  
Project Division  
Yelahanka Zone  
BBMP, Bangalore - 92.



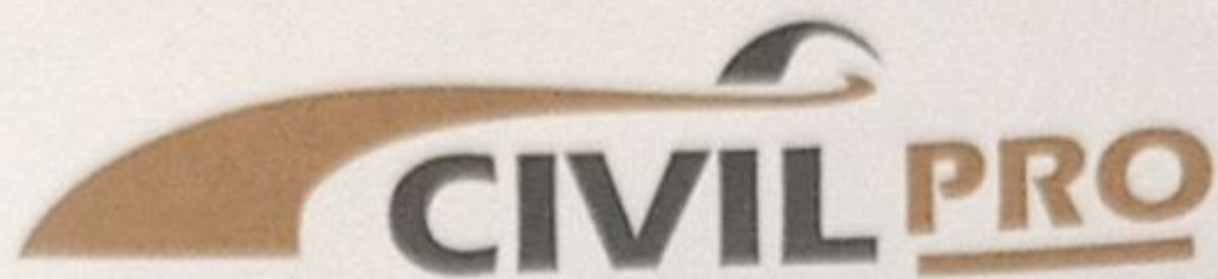
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Format No: CP/TF/01

### TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Date: 21-05-22

Lab ID : CP-2022-10-13-06  
Customer : Assistant Executive Engineer, Project Sub Division, BBMP, Bangalore.  
Address : Project Sub Division, BBMP, Bangalore.  
Project Name : Providing RO Plant in Byatarayanapura in Ward No.07  
Agency : Sri.M C Adarsh, #2/427, 8th Main, 17th Cross, Agrahara Dasarahalli, Basaveshwaranagara, Bangalore-79  
Customer's Reference : EE(Project)/YnkZone/WO/135/2020-21  
Source of Sample : Sample supplied by Agency  
Sample Condition : Satisfactory  
Date of Receipt : 22-04-22  
Sample Type : Birla Super 53grade  
Reference to BIS codes : IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification .  
IS 4031 Part 4, (RA 2019) Determination of Consistency of Standard Cement Paste, Clause 5  
IS 4031 Part 6, (RA 2019) Determination of Compressive Strength, Clause 6  
Date of test : 23-04-22  
Environmental Conditions during test : Temperature: 26°C  
Humidity: 72%

| Compressive Strength |                     |                       |                                    |
|----------------------|---------------------|-----------------------|------------------------------------|
| Sl.No.               | Physical properties | Results               | Requirement as per IS 12269: 2013  |
| 1                    | 3 Days              | 29.5N/mm <sup>2</sup> | Not less than 27 N/mm <sup>2</sup> |
| 2                    | 7 Days              | 38.5N/mm <sup>2</sup> | Not less than 37 N/mm <sup>2</sup> |
| 3                    | 28 Days             | 58.5N/mm <sup>2</sup> | Not less than 53 N/mm <sup>2</sup> |

\* The results obtained are satisfactory as per standard requirements.

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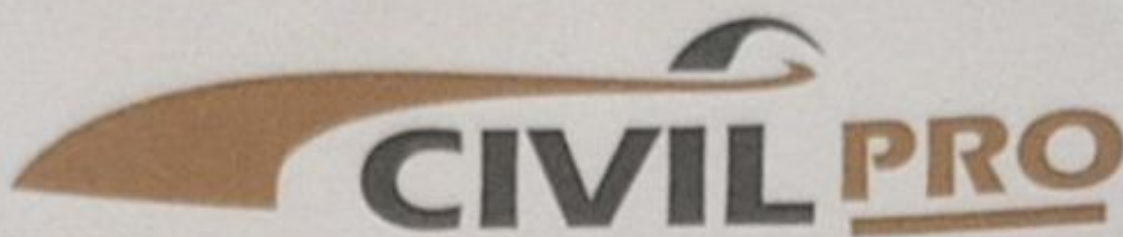
Asst. Executive Engineer  
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Certificate No.: TC-5548

Format No: CP/TF/01

### TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2022-10-13-06 Date: 25-04-22  
Customer : Assistant Executive Engineer, Project Sub Division, BBMP,  
Bangalore.  
Address : Project Sub Division, BBMP, Bangalore.  
Project Name : Providing RO Plant in Byatarayanapura in Ward No.07  
Agency : Sri.M C Adarsh, #2/427, 8th Main, 17th Cross, Agrahara  
Dasarahalli, Basaveshwaranagara, Bangalore-79  
Customer's Reference : EE(Project)/YnkZone/WO/135/2020-21  
Source of Sample : Sample supplied by Agency  
Sample condition : Satisfactory  
Date of Receipt : 22-04-22  
Sample Type : 40mm down size coarse aggregate  
Reference to BIS codes : IS: 383:2016 (Specification for Coarse and fine Aggregates )  
IS: 2386 :1963(Part - 1,3,4) RA2021  
IS 2386 Part 1: Particle Size and Shape  
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption  
IS 2386 Part 4: Mechanical Properties  
Date of test : 22-04-22

### SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:

Total weight taken : 15000 grams

| Sample No. | Sieve No. | Weight Retained in gms | Cumulative Weight Retained in gms | % Cumulative Weight Retained | % Passing | Required as per IS 383:2016 |
|------------|-----------|------------------------|-----------------------------------|------------------------------|-----------|-----------------------------|
| 1          | 80 mm     | 0                      | 0                                 | 0.0                          | 100       | 100                         |
| 2          | 40 mm     | 214                    | 214                               | 1.4                          | 98.6      | 90-100                      |
| 3          | 20 mm     | 7254                   | 7468                              | 49.8                         | 50.2      | 30-70                       |
| 4          | 10 mm     | 4442                   | 11910                             | 79.4                         | 20.6      | 10-35                       |
| 5          | 4.75 mm   | 2685                   | 14595                             | 97.3                         | 2.7       | 0-5                         |
| 6          | Pan       | 405                    | 15000                             | 100.0                        | 0         | ---                         |

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### TEST REPORT ON COARSE AGGREGATES

Lab ID

: CP-2022-10-13-06

Date: 25-04-22

#### PHYSICAL PROPERTIES

| Sl.no | Tests                          | Result | Requirements as per IS:383-2016                                                              |
|-------|--------------------------------|--------|----------------------------------------------------------------------------------------------|
| 1     | Flakiness Index(%)             | 10.6   | Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate |
| 2     | Elongation Index(%)            | 12.3   |                                                                                              |
| 3     | Specific Gravity               | 2.64   | —                                                                                            |
| 4     | Bulk Density(Loose) (Kg/l)     | 1.49   | —                                                                                            |
| 5     | Bulk Density(Compacted) (Kg/l) | 1.52   | —                                                                                            |
| 6     | Water Absorption(%)            | 0.17   | —                                                                                            |

\* The results obtained are satisfactory as per standard requirements.

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Project Division  
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### TEST REPORT ON COARSE AGGREGATES

Lab ID :  
Customer : CP-2022-10-13-06 Date: 25-04-22  
: Assistant Executive Engineer, Project Sub Division, BBMP, Bangalore.  
Address : Project Sub Division, BBMP, Bangalore.  
Project Name : Providing RO Plant in Byatarayanapura in Ward No.07  
Agency : Sri.M C Adarsh, #2/427, 8th Main, 17th Cross, Agrahara Dasarahalli,  
Basaveshwaranagara, Bangalore-79  
Customer Reference : EE(Project)/YnkZone/WO/135/2020-21  
Source of Sample : Sample supplied by Agency  
Sample Condition : Satisfactory  
Date of Receipt : 22-04-22  
Sample Type/ Size : 20mm down size coarse aggregate  
Reference to BIS codes : IS: 383:2016 (Specification for Coarse and fine Aggregates )  
IS: 2386 :1963(Part - 1,3,4) RA2021  
IS 2386 Part 1: Particle Size and Shape  
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption  
IS 2386 Part 4: Mechanical Properties  
Date of test : 22-04-22

### SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:

Total weight taken : 5000 grams

| Sample No. | Sieve No. | Weight Retained in gms | Cumulative Weight Retained in gms | % Cumulative Weight Retained | % Passing | Required as per IS 383:2016 |
|------------|-----------|------------------------|-----------------------------------|------------------------------|-----------|-----------------------------|
| 1          | 40 mm     | 0                      | 0                                 | 0                            | 100       | 100                         |
| 2          | 20 mm     | 237                    | 237                               | 4.7                          | 95.3      | 90-100                      |
| 3          | 10 mm     | 2544                   | 2781                              | 55.6                         | 44.4      | 25-55                       |
| 4          | 4.75 mm   | 2107                   | 4888                              | 97.8                         | 2.2       | 0-10                        |
| 5          | Pan       | 112                    | 5000                              | 100                          | 0         | -                           |

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Certificate No.: TC-5548

Format No: CP/TF/01

Lab ID

### TEST REPORT ON COARSE AGGREGATES

: CP-2022-10-13-06

Date: 25-04-22

#### PHYSICAL PROPERTIES

| Sl.no | Tests                          | Result | Requirements as per IS:383-2016                                                                                                                                                                                                               |
|-------|--------------------------------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1     | Flakiness Index(%)             | 10.7   | Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate                                                                                                                                                  |
| 2     | Elongation Index(%)            | 11.4   |                                                                                                                                                                                                                                               |
| 3     | Specific Gravity               | 2.65   | —                                                                                                                                                                                                                                             |
| 4     | Bulk Density(Loose) (Kg/l)     | 1.53   | —                                                                                                                                                                                                                                             |
| 5     | Bulk Density(Compacted) (Kg/l) | 1.57   | —                                                                                                                                                                                                                                             |
| 6     | Water Absorption(%)            | 0.19   | —                                                                                                                                                                                                                                             |
| 7     | Aggregate crushing Value(%)    | 25.6   | Max 30% for Aggregates to be used in concrete for wearing Surface, In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface. |
| 8     | Aggregate Impact Value(%)      | 22.5   | 30% for Aggregates to be used in concrete for wearing Surface,<br>45% for Aggregates to be used in concrete other than for wearing Surface.                                                                                                   |

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Format No: CP/TF/01

## TEST REPORT OF FINE AGGREGATE

Lab ID : CP-2022-10-13-06 Date: 25-04-22  
Customer : Assistant Executive Engineer, Project Sub Division, BBMP, Bangalore.  
Address : Project Sub Division, BBMP, Bangalore.  
Project Name : Providing RO Plant in Byatarayanapura in Ward No.07  
Agency : Sri.M C Adarsh, #2/427, 8th Main, 17th Cross, Agrahara Dasarhalli,  
Basaveshwaranagara, Bangalore-79  
Customer's Reference : EE(Project)/YnkZone/WO/135/2020-21  
Source of Sample : Sample supplied by Agency  
Sample Condition : Satisfactory  
Date of Receipt : 22-04-22  
Sample Type : Fine Aggregate  
Reference to BIS codes : IS 383 : 2016 (Specification for Coarse and fine Aggregates)  
IS: 2386 :1963(Part - 1, 3) RA2021  
IS 2386 Part 1: Particle Size and Shape  
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption  
Date of test : 22-04-22

Total weight taken : 1000 grams

| Sl.no | Sieve Size | Weight Retained (gms) | Cumulative Weight Retained (gms) | % Cumulative Weight Retained | % Passing | Requirement as per IS 383:2016 |                 |                  |                 |
|-------|------------|-----------------------|----------------------------------|------------------------------|-----------|--------------------------------|-----------------|------------------|-----------------|
|       |            |                       |                                  |                              |           | Grading Zone I                 | Grading Zone II | Grading Zone III | Grading Zone IV |
| 1     | 10 mm      | 0                     | 0                                | 0.0                          | 100.0     | 100                            | 100             | 100              | 100             |
| 2     | 4.75 mm    | 32                    | 32                               | 3.2                          | 96.8      | 90-100                         | 90-100          | 90-100           | 95-100          |
| 3     | 2.36 mm    | 42                    | 74                               | 7.4                          | 92.6      | 60-95                          | 75-100          | 85-100           | 95-100          |
| 4     | 1.18 mm    | 245                   | 319                              | 31.9                         | 68.1      | 30-70                          | 55-90           | 75-100           | 90-100          |
| 5     | 600 micron | 201                   | 520                              | 52.0                         | 48.0      | 15-34                          | 35-59           | 60-79            | 80-100          |
| 6     | 300 micron | 199                   | 719                              | 71.9                         | 28.1      | 5-20                           | 8-30            | 12-40            | 15-50           |
| 7     | 150 micron | 195                   | 914                              | 91.4                         | 8.6       | 0-10                           | 0-10            | 0-10             | 0-15            |
| 8     | Pan        | 86                    | 1000                             | 100.0                        | 0.0       | ---                            | ---             | ---              | ---             |

Result :The tested Sample Conforms to Grading Zone II

Page 1/2

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Certificate No.: TC-5548

## TEST REPORT OF FINE AGGREGATE

Date: 25-04-22

Lab ID : CP-2022-10-13-06

### PHYSICAL PROPERTIES

| Sl.no | Tests                            | Result | Requirements as per IS 383:2016                                                                                                             |
|-------|----------------------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------|
| 1     | Water Absorption(%)              | 1.22   | -                                                                                                                                           |
| 2     | Specific Gravity                 | 2.54   | -                                                                                                                                           |
| 3     | Material finer than 75 micron(%) | 9.5    | Uncrushed fine Aggregate Max 3%,<br>Crushed Fine aggregate Max 15%,<br>Mixed Fine aggregate Max 12%,<br>Manufactured Fine aggregate Max 10% |

\* The results obtained are satisfactory as per standard requirements.

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**R KARTHIK RECHAN**  
Authorized Signatory  
Quality Manager

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### TEST RESULTS OF STEEL

Lab ID : CP-2022-10-13-06 Date: 25-04-22  
Customer : Assistant Executive Engineer, Project Sub Division, BBMP, Bangalore.  
Address : Project Sub Division, BBMP, Bangalore.  
Project Name : Providing RO Plant in Byatarayanapura in Ward No.07  
Agency : Sri.M C Adarsh, #2/427, 8th Main, 17th Cross, Agrahara Dasarahalli,  
Basaveshwaranagara, Bangalore-79  
Customer's Reference : EE(Project)/YnkZone/WO/135/2020-21  
Source of Sample : Sample supplied by Agency  
Sample Condition : Satisfactory  
Date of Receipt : 22-04-22  
Sample Type : INDUS  
Reference to BIS codes : IS 1786-2008, IS:1608-2005(RA 2011), IS 1599-2019.  
Date of test : 23-04-22

| SLNo | Identification of sample | Grade of the sample | Diameter of the steel bar | Weight of the sample | Yield stress         | Tensile strength     | Elongation | Bend test    | Rebend test  |
|------|--------------------------|---------------------|---------------------------|----------------------|----------------------|----------------------|------------|--------------|--------------|
|      |                          |                     | (mm)                      | (kg/m)               | (N/mm <sup>2</sup> ) | (N/mm <sup>2</sup> ) | (%)        |              |              |
| 1    | INDUS                    | Fe500               | 8                         | 0.392                | 522                  | 638                  | 21.0%      | Satisfactory | Satisfactory |
| 2    | INDUS                    | Fe500               | 10                        | 0.615                | 542                  | 668                  | 20.0%      | Satisfactory | Satisfactory |
| 3    | INDUS                    | Fe500               | 12                        | 0.884                | 559                  | 672                  | 20.0%      | Satisfactory | Satisfactory |
| 4    | INDUS                    | Fe500               | 16                        | 1.582                | 568                  | 680                  | 19.0%      | Satisfactory | Satisfactory |
| 5    | INDUS                    | Fe500               | 20                        | 2.472                | 583                  | 698                  | 19.0%      | Satisfactory | Satisfactory |

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Certificate No.: TC-5548

Format No: CP/TF/2017

## TEST REPORT FOR SAND MASONRY MORTARS

Lab ID : CP-2022-10-13-06 Date: 07-06-22  
Customer : Assistant Executive Engineer, Project Sub Division, BBMP, Bangalore.  
Address : Project Sub Division, BBMP, Bangalore.  
Project Name : Providing RO Plant in Byatarayanapura in Ward No.07  
Agency : Sri.M C Adarsh, #2/427, 8th Main, 17th Cross, Agrahara Dasarahalli,  
Basaveshwaranagara, Bangalore-79  
Customer's Reference : EE(Project)/YnkZone/WO/135/2020-21  
Source of Sample : Sample supplied by Agency  
Sample Condition : Satisfactory  
Date of Receipt : 04-06-22  
Sample Type : Fine Aggregate, M.Sand for Mortar  
Reference to BIS codes : IS 383 : 2016 (Specification for Coarse and fine Aggregates)  
IS: 2116-1980 (RA-2007) (Specification for Sand for Masonry Mortars)  
IS: 2386 :1963(Part - 1, 3) RA2021  
IS 2386 Part 1: Particle Size and Shape  
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption  
Date of test : 04-06-22

Total weight taken : 1000 grams

| Sl.no | Sieve Size | Weight Retained (gms) | Cumulative Weight Retained (gms) | % Cumulative Weight Retained | % Passing | Requirement as per IS: 2116-1980 (RA-2007) |
|-------|------------|-----------------------|----------------------------------|------------------------------|-----------|--------------------------------------------|
| 1     | 4.75 mm    | 0                     | 0                                | 0                            | 100       | 100                                        |
| 2     | 2.36 mm    | 22                    | 22                               | 2.2                          | 97.8      | 90-100                                     |
| 3     | 1.18 mm    | 242                   | 264                              | 26.4                         | 73.6      | 70-100                                     |
| 4     | 600 micron | 215                   | 479                              | 47.9                         | 52.1      | 40-100                                     |
| 5     | 300 micron | 242                   | 721                              | 72.1                         | 27.9      | 5-70                                       |
| 6     | 150 micron | 198                   | 919                              | 91.9                         | 8.1       | 0-15                                       |
| 7     | Pan        | 81                    | 1000                             | 100.0                        | 0.0       | 0                                          |

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Certificate No.: TC-5548

## TEST REPORT FOR SAND MASONRY MORTARS

Lab ID

: CP-2022-10-13-06

Date: 07-06-22

### PHYSICAL PROPERTIES

| Sl.no | Tests                             | Result | Requirements as per IS 383:2016 |
|-------|-----------------------------------|--------|---------------------------------|
| 1     | Water Absorption(%)               | 2.95   | —                               |
| 2     | Specific Gravity                  | 2.5    | —                               |
| 3     | Material finer than 75 micron(%)  | 10.2   | Crushed Fine aggregate Max 15%  |
| 4     | Compacted Bulk Density (Kg/litre) | 1.89   | —                               |
| 5     | Loose Bulk Density (Kg/litre)     | 1.72   | —                               |

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End of Report\*\*\*\*



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### TEST REPORT FOR PLASTER SAND

Lab ID : CP-2022-10-13-06 Date: 07-06-22  
Customer : Assistant Executive Engineer, Project Sub Division, BBMP, Bangalore.  
Address : Project Sub Division, BBMP, Bangalore.  
Project Name : Providing RO Plant in Byatarayanapura in Ward No.07  
Agency : Sri.M C Adarsh, #2/427, 8th Main, 17th Cross, Agrahara Dasarahalli,  
Basaveshwaranagara, Bangalore-79  
Customer's Reference : EE(Project)/YnkZone/WO/135/2020-21  
Source of Sample : Sample supplied by Agency  
Sample Condition : Satisfactory  
Date of Receipt : 04-06-22  
Sample Type : Plaster Sand  
Reference to BIS codes : IS: 383 : 2016 (Specification for Coarse and fine Aggregates)  
IS1542:1992 (RA 2019) (Sand for Plaster - Specification)  
IS: 2386 :1963(Part - 1, 3) RA2021  
IS 2386 Part 1: Particle Size and Shape  
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption  
Date of test : 04-06-22

Total weight taken : 1000 grams

| Sl.no | Sieve Size | Weight Retained (gms) | Cumulative Weight Retained (gms) | % Cumulative Weight Retained | % Passing | Requirement as per IS 1542:1992 |
|-------|------------|-----------------------|----------------------------------|------------------------------|-----------|---------------------------------|
| 1     | 10 mm      | 0                     | 0                                | 0                            | 100       | 100                             |
| 2     | 4.75 mm    | 18                    | 18                               | 1.8                          | 98.2      | 95-100                          |
| 3     | 2.36 mm    | 22                    | 40                               | 4.0                          | 96.0      | 95-100                          |
| 4     | 1.18 mm    | 42                    | 82                               | 8.2                          | 91.8      | 90-100                          |
| 5     | 600 micron | 102                   | 184                              | 18.4                         | 81.6      | 80-100                          |
| 6     | 300 micron | 310                   | 494                              | 49.4                         | 50.6      | 20-65                           |
| 7     | 150 micron | 398                   | 892                              | 89.2                         | 10.8      | 0-15                            |
| 8     | Pan        | 108                   | 1000                             | 100.0                        | 0.0       | ---                             |

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Certificate No.: TC-5548

## TEST REPORT OF FINE AGGREGATE

Lab ID : CP-2022-10-13-06

Date: 07-06-22

### PHYSICAL PROPERTIES

| Sl.no | Tests                            | Result | Requirements as per IS 383:2016                                                                                                             |
|-------|----------------------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------|
| 1     | Water Absorption(%)              | 1.98   | —                                                                                                                                           |
| 2     | Specific Gravity                 | 2.52   | —                                                                                                                                           |
| 3     | Material finer than 75 micron(%) | 10.2   | Uncrushed fine Aggregate Max 3%,<br>Crushed Fine aggregate Max 15%,<br>Mixed Fine aggregate Max 12%,<br>Manufactured Fine aggregate Max 10% |

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### TEST REPORT OF CEMENT CONCRETE CUBES

Date: 13/05/2022

Lab ID : CP-2022-10-13-06  
Customer : Assistant Executive Engineer, Project Sub Division, BBMP, Bangalore.  
Address : Project Sub Division, BBMP, Bangalore.  
Project Name : Providing RO Plant in Byatarayanapura in Ward No.07  
Agency : Sri.M C Adarsh, #2/427, 8th Main, 17th Cross, Agrahara Dasarahalli, Basaveshwaranagara, Bangalore-79  
Customer's Reference : EE(Project)/YnkZone/WO/135/2020-21  
Source of Sample : Sample supplied by Agency  
Sample Condition : Satisfactory  
Date of Receipt : 09-05-22  
Customer ID : Footing Concrete  
Sample Type /Size : 150X150X150 mm  
Sample grade/Age : M25 / 7 Days Compressive Strength  
Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5  
Date of test : 13/05/2022

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen      | Cross sectional area | Weight of the sample | Failure Load | Compressive strength | Average Compressive Strength |
|---------|---------------------|-------------------|-----------------|-----------------|--------------------------------|----------------------|----------------------|--------------|----------------------|------------------------------|
|         |                     |                   |                 |                 | (mm)                           | (Sq.mm)              | (kg)                 | (KN)         | (N/mm <sup>2</sup> ) | (N/mm <sup>2</sup> )         |
| 1       | Footing Concrete    | M25               | 06/05/2022      | 13/05/2022      | 150.67 X<br>150.64 X<br>149.05 | 22696                | 8.451                | 529.5        | 23.3                 | 22.9                         |
| 2       | Footing Concrete    | M25               | 06/05/2022      | 13/05/2022      | 150.26 X<br>149.16 X<br>151.82 | 22413                | 8.541                | 510.9        | 22.8                 |                              |
| 3       | Footing Concrete    | M25               | 06/05/2022      | 13/05/2022      | 149.94 X<br>150.35 X<br>149.42 | 22544                | 8.958                | 506.2        | 22.5                 |                              |

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## TEST REPORT OF CEMENT CONCRETE CUBES

Date: 03/06/2022

Lab ID  
Customer  
Address  
Project Name  
Agency

: CP-2022-10-13-06  
: Assistant Executive Engineer, Project Sub Division, BBMP, Bangalore.  
: Project Sub Division, BBMP, Bangalore.  
: Providing RO Plant in Byatarayanapura in Ward No.07  
: Sri.M C Adarsh, #2/427, 8th Main, 17th Cross, Agrahara Dasarahalli, Basaveshwaranagara, Bangalore-79  
: EE(Project)/YnkZone/WO/135/2020-21  
: Sample supplied by Agency  
: Satisfactory  
: 09-05-22  
: Footing Concrete  
: 150X150X150 mm  
: M25 / 28 Days Compressive Strength  
: IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5

Date of test : 03/06/2022

| Sl. No. | Identification Mark | Grade of concrete | Date of Casting | Date of Testing | Dimension of the Specimen      | Cross sectional area | Weight of the sample | Failure Load | Compressive strength | Average Compressive Strength |
|---------|---------------------|-------------------|-----------------|-----------------|--------------------------------|----------------------|----------------------|--------------|----------------------|------------------------------|
|         |                     |                   |                 |                 | (mm)                           | (Sq.mm)              | (kg)                 | (KN)         | (N/mm <sup>2</sup> ) | (N/mm <sup>2</sup> )         |
| 1       | Footing Concrete    | M25               | 06/05/2022      | 03/06/2022      | 149.71 X<br>149.68 X<br>150.40 | 22410                | 8.735                | 616.6        | 27.5                 | 27.6                         |
| 2       | Footing Concrete    | M25               | 06/05/2022      | 03/06/2022      | 149.14 X<br>150.94 X<br>149.01 | 22511                | 8.699                | 593.6        | 26.4                 |                              |
| 3       | Footing Concrete    | M25               | 06/05/2022      | 03/06/2022      | 151.59 X<br>150.65 X<br>150.83 | 22838                | 8.164                | 661.7        | 29.0                 |                              |

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Certificate No.: TC-5548

Format No: CP/TF/01

# TEST REPORT ON PHYSICAL REQUIREMENTS OF SOLID CONCRETE BLOCKS

Date: 23-05-22

Lab ID : CP-2022-10-13-06  
Customer : Assistant Executive Engineer, Project Sub Division, BBMP, Bangalore.  
Address : Project Sub Division, BBMP, Bangalore.  
Project Name : Providing RO Plant in Byatarayanapura in Ward No.07  
Agency : Sri.M C Adarsh, #2/427, 8th Main, 17th Cross, Agrahara Dasarahalli, Basaveshwaranagara, Bangalore-79  
Customer's Reference : EE(Project)/YnkZone/WO/135/2020-21  
Source of Sample : Sample supplied by Agency  
Sample Condition : Satisfactory  
Date of Receipt : 18-05-22  
Sample Type/Size : Solid concrete blocks size (400X200X200)mm  
Reference to BIS codes : IS : 2185 (Part 1) : 2005(RA 2020) Concrete Masonry Specification  
Part 1:Hollow and Solid Concrete Blocks (Dimensions -Annex-B, Clause 9.2 and 10 , Block density Annex -C Clause 9.3 and 10, Compressive strength Annex -D Clause 9.4 and 10, Water absorption Annex -E Clause 9.5 and 10)  
Date of test : 18-05-22

## BLOCK DENSITY:

| Sl. No. | Measurement of overall Dimensions of Individual Blocks |         |        | Overall Volume of the Block in Cubic Centimetres | Weight of Oven Dried Block in Kilograms to the nearest 10 Gram | Block Density in Kg/cum*10 <sup>6</sup> | Avg.Block Density in (Kg/cum) | As per IS 2185(Part 1):2005 (RA 2010) |
|---------|--------------------------------------------------------|---------|--------|--------------------------------------------------|----------------------------------------------------------------|-----------------------------------------|-------------------------------|---------------------------------------|
|         | Length                                                 | Breadth | Height |                                                  |                                                                |                                         |                               |                                       |
|         | mm                                                     | mm      | mm     | (Cm <sup>3</sup> )                               | Kg                                                             | Kg/m <sup>3</sup>                       | Kg/m <sup>3</sup>             |                                       |
| 1       | 402                                                    | 201     | 202    | 16322                                            | 32.892                                                         | 2015.2                                  | 2018.7                        | Not less than 1800Kg/m <sup>3</sup>   |
| 2       | 405                                                    | 199     | 199    | 16038                                            | 31.457                                                         | 1961.4                                  |                               |                                       |
| 3       | 399                                                    | 203     | 200    | 16199                                            | 33.689                                                         | 2079.6                                  |                               |                                       |

## WATER ABSORPTION:

| Sl. No. | Wet weight after water absorption | Dry weight (Oven dry) | Water Absorption | Avg.Water Absorption | As per IS 2185(Part 1):2005 (RA 2010) |
|---------|-----------------------------------|-----------------------|------------------|----------------------|---------------------------------------|
|         | kg                                | kg                    | %                | %                    |                                       |
| 1       | 32.58                             | 31.15                 | 4.38             | 3.77                 | Shall not be more than 10% by mass    |
| 2       | 33.05                             | 31.78                 | 3.84             |                      |                                       |
| 3       | 33.45                             | 32.41                 | 3.09             |                      |                                       |

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Certificate No.: TC-5548

Lab ID : CP-2022-10-13-06

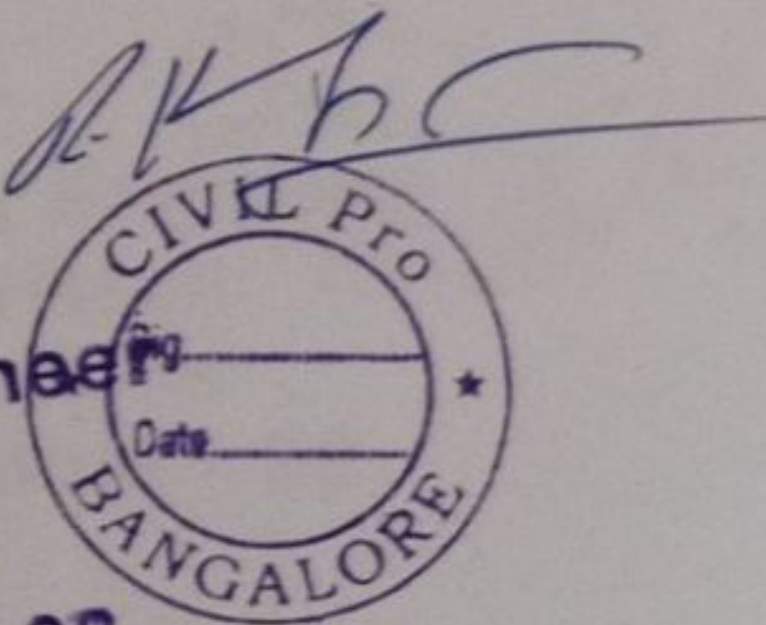
Date: 23-05-22

**DIMENSION ANALYSIS**

| Sl.no            | Length<br>mm | Breadth<br>mm | Height<br>mm | Requirement as per IS<br>2185(Part 1):2005                                                                |
|------------------|--------------|---------------|--------------|-----------------------------------------------------------------------------------------------------------|
| 1                | 404          | 200           | 203          | <b>Length : <math>\pm 5</math>mm<br/>Breadth : <math>\pm 3</math>mm<br/>Height : <math>\pm 3</math>mm</b> |
| 2                | 401          | 200           | 203          |                                                                                                           |
| 3                | 401          | 201           | 200          |                                                                                                           |
| 4                | 404          | 201           | 201          |                                                                                                           |
| 5                | 400          | 202           | 202          |                                                                                                           |
| 6                | 401          | 200           | 199          |                                                                                                           |
| 7                | 401          | 203           | 203          |                                                                                                           |
| 8                | 403          | 202           | 200          |                                                                                                           |
| 9                | 403          | 201           | 199          |                                                                                                           |
| 10               | 403          | 202           | 200          |                                                                                                           |
| 11               | 404          | 201           | 200          |                                                                                                           |
| 12               | 401          | 201           | 203          |                                                                                                           |
| 13               | 401          | 202           | 203          |                                                                                                           |
| 14               | 401          | 199           | 201          |                                                                                                           |
| 15               | 401          | 199           | 201          |                                                                                                           |
| 16               | 403          | 202           | 199          |                                                                                                           |
| 17               | 400          | 201           | 199          |                                                                                                           |
| 18               | 403          | 199           | 201          |                                                                                                           |
| 19               | 400          | 201           | 200          |                                                                                                           |
| 20               | 399          | 201           | 199          |                                                                                                           |
| Average<br>of 20 | 402          | 201           | 201          |                                                                                                           |

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AN ISO 9001 : 2008 COMPANY & ACCREDITED LABORATORY AS PER ISO/IEC 17025:2017  
# 4, 7TH MAIN MALLESWARAM, BANGALORE -3

Certificate No.: TC-5548

Lab ID : CP-2022-10-13-06

Date: 23-05-22

COMPRESSIVE STRENGTH:

| SL No. | Size of solid block |         | Area               | Failure Load | Compressive strength | Average Compressive strength |
|--------|---------------------|---------|--------------------|--------------|----------------------|------------------------------|
|        | Length              | Breadth |                    |              |                      |                              |
|        | mm                  | mm      | (mm <sup>2</sup> ) | (KN)         | N/mm <sup>2</sup>    | (N/mm <sup>2</sup> )         |
| 1      | 400                 | 200     | 79988              | 449.1        | 5.6                  | 5.5                          |
| 2      | 401                 | 200     | 80355              | 449.3        | 5.6                  |                              |
| 3      | 401                 | 201     | 80603              | 418.2        | 5.2                  |                              |
| 4      | 404                 | 201     | 81015              | 450.3        | 5.6                  |                              |
| 5      | 400                 | 202     | 81000              | 446.9        | 5.5                  |                              |
| 6      | 401                 | 200     | 80203              | 477.4        | 6.0                  |                              |
| 7      | 401                 | 203     | 81477              | 455.3        | 5.6                  |                              |
| 8      | 403                 | 202     | 81476              | 427.9        | 5.3                  |                              |

As per IS Requirements (Table 2, Clause 5.1, 5.2 and 9.4)

| Compressive strength |                        |                           |
|----------------------|------------------------|---------------------------|
| Grade                | Minimum average        | Minimum Individual units. |
| C (5.0)              | 5.00 N/mm <sup>2</sup> | 4.00 N/mm <sup>2</sup>    |
| C (4.0)              | 4.00 N/mm <sup>2</sup> | 3.20 N/mm <sup>2</sup>    |

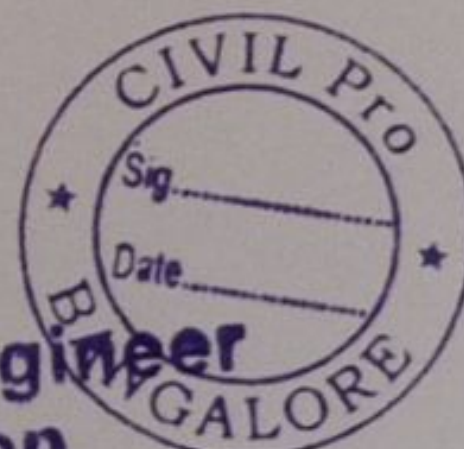
\* The Results Obtained are Satisfactory as per Standard Requirements

Note:

The results pertain to the samples received and tested.  
All information furnished by Customer/Representative  
Any correction in the report will make this report invalid  
This report without prior written approval should not be reproduced or published in full or part.  
Samples will be disposed after 30 days from the date of issue of test certificate

*[Signature]*

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FOR CIVIL Pro.  
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